FIG. 1

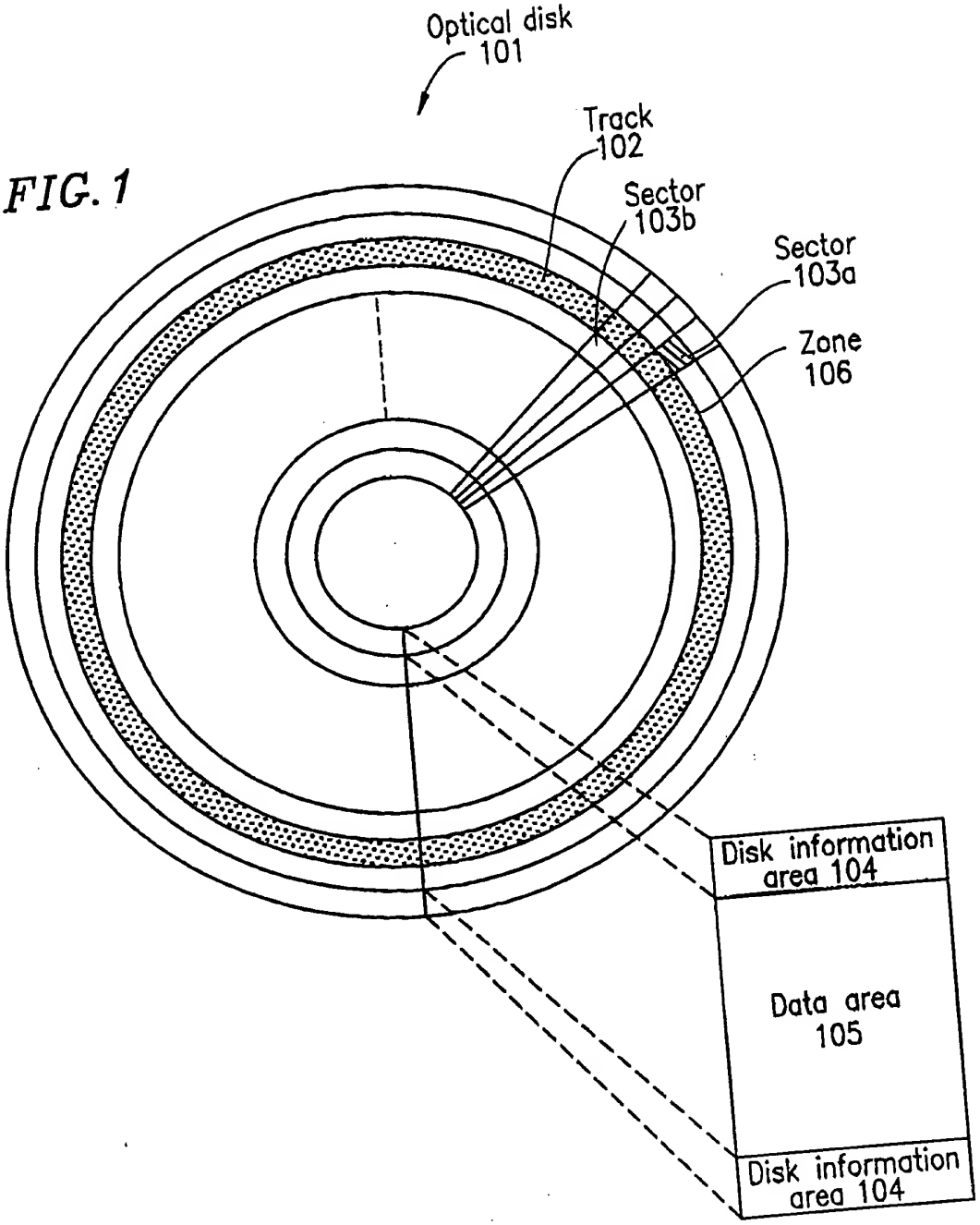
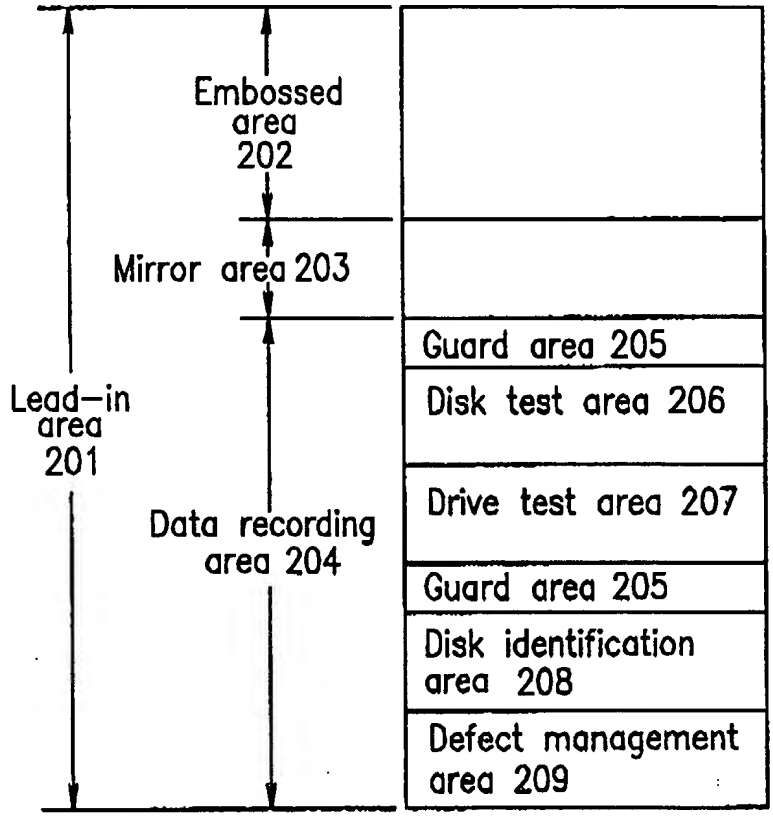

Optical disk
101
Track
102
Sector
103b
Sector
103a
Zone
106
Disk information area 104
Data area
105
Disk information area 104

FIG. 2


Embossed area 202
Mirror area 203
Lead-in area 201
Data recording area 204
Guard area 205
Disk test area 206
Drive test area 207
Guard area 205
Disk identification area 208
Defect management area 209

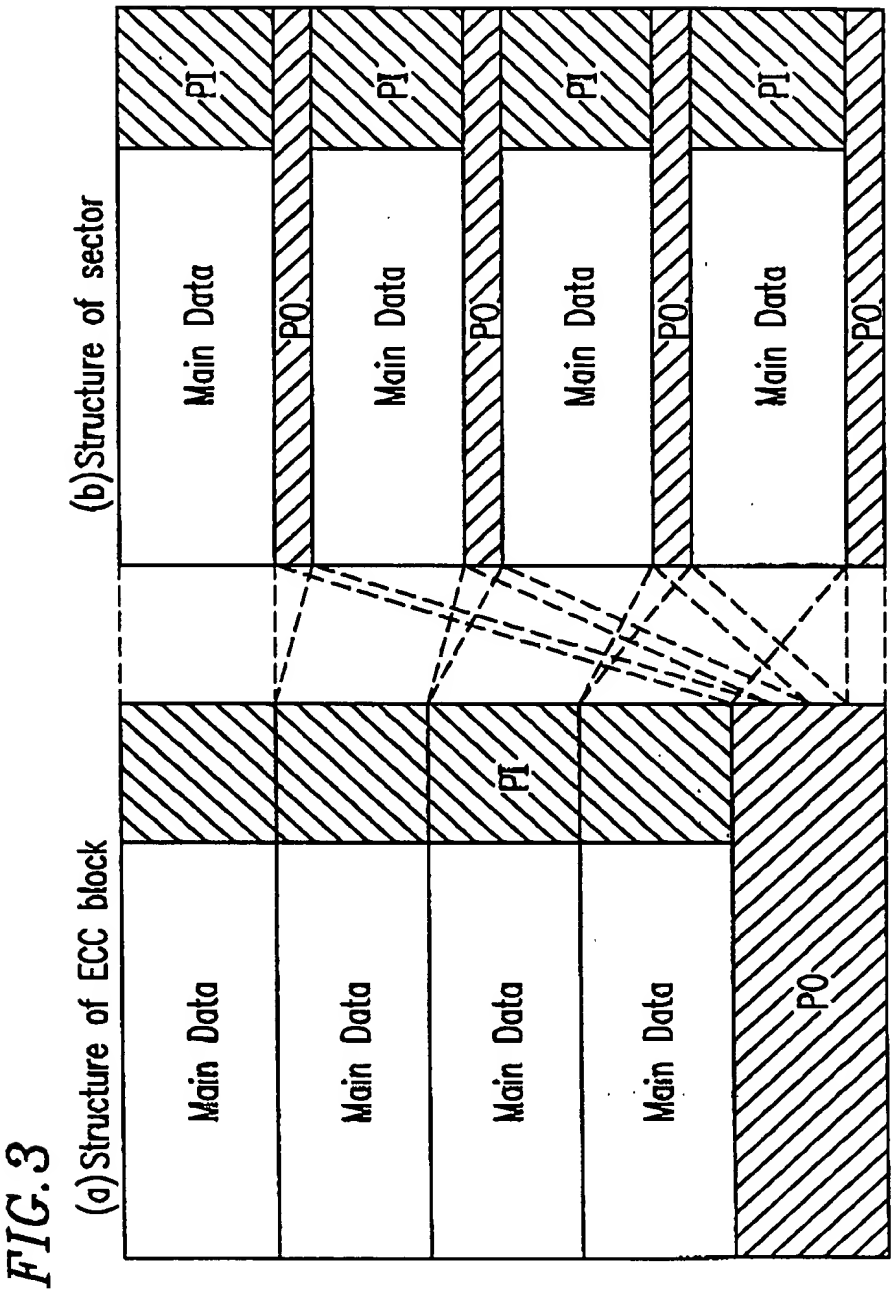

(a) Structure of ECC block
Main Data
Main Data
Main Data
Main Data
PI
PO
(b) Structure of sector
Main Data
Main Data
Main Data
Main Data
PI
PI
PI
PI
PO
PO
PO
PO

FIG. 3

FIG. 4

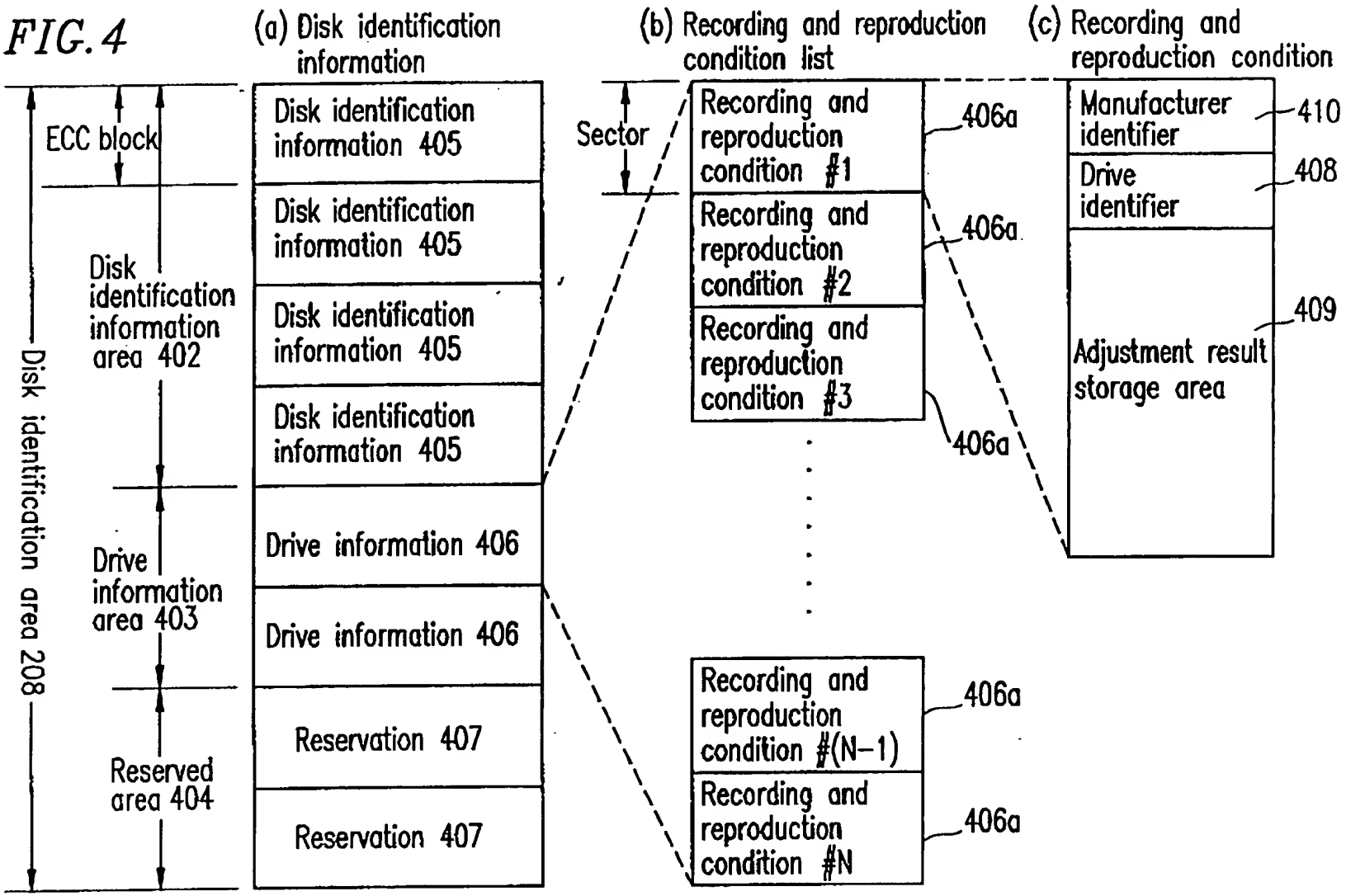

(a) Disk identification information
(b) Recording and reproduction condition list
(c) Recording and reproduction condition
ECC block
Disk identification information area 402
Drive information area 403
Reserved area 404
Disk identification area 208
Disk identification information 405
Disk identification information 405
Disk identification information 405
Disk identification information 405
Drive information 406
Drive information 406
Reservation 407
Reservation 407
Sector
Recording and reproduction condition #1
Recording and reproduction condition #2
Recording and reproduction condition #3
Recording and reproduction condition #(N-1)
Recording and reproduction condition #N
406a
406a
406a
406a
406a
Manufacturer identifier
410
Drive identifier
408
409
Adjustment result storage area

FIG. 5

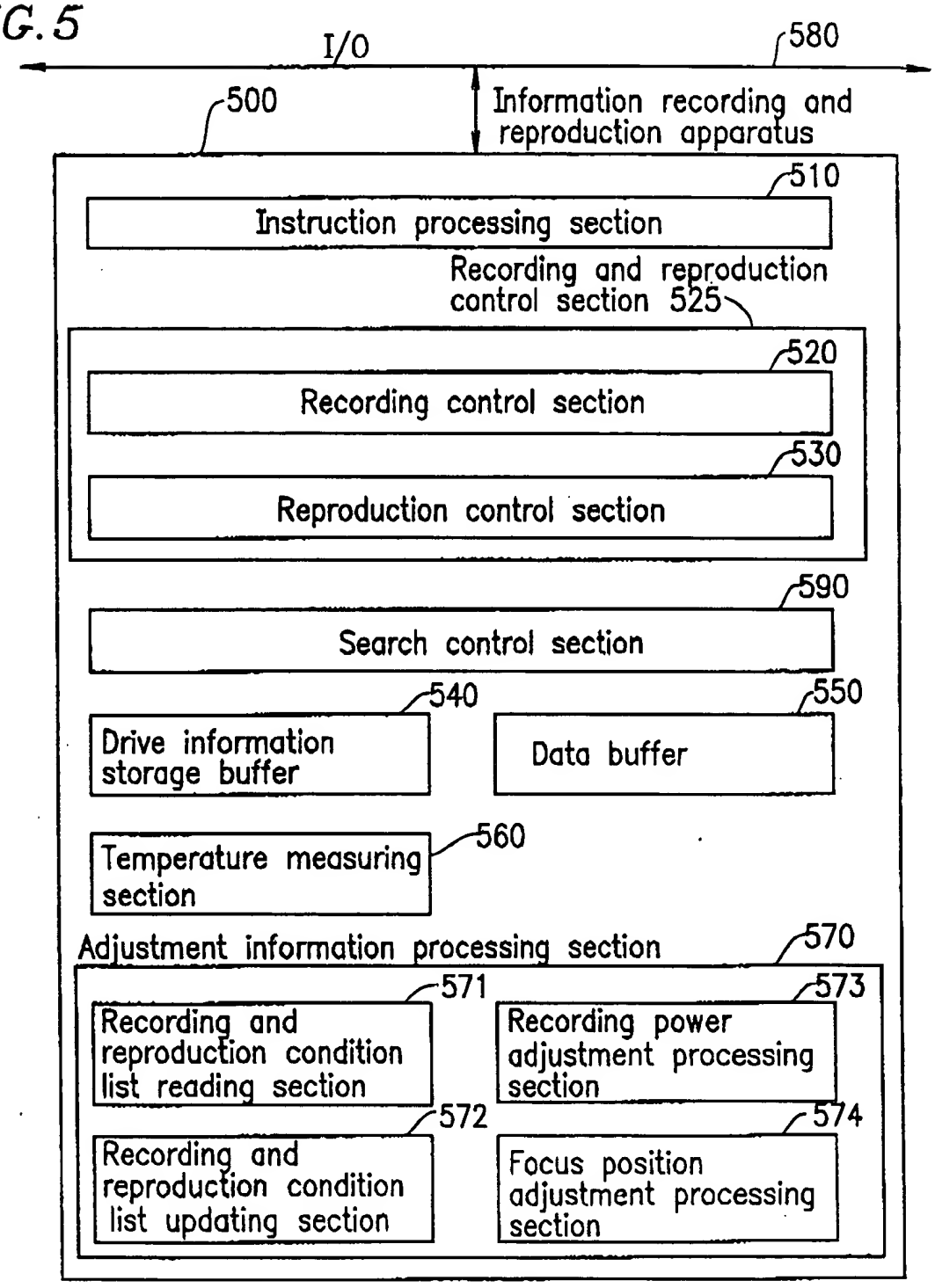

I/O
580
500
Information recording and reproduction apparatus
510
Instruction processing section
Recording and reproduction control section 525
520
Recording control section
530
Reproduction control section
590
Search control section
540
Drive information storage buffer
550
Data buffer
560
Temperature measuring section
Adjustment information processing section
570
571
Recording and reproduction condition list reading section
573
Recording power adjustment processing section
572
Recording and reproduction condition list updating section
574
Focus position adjustment processing section

*FIG. 6A*

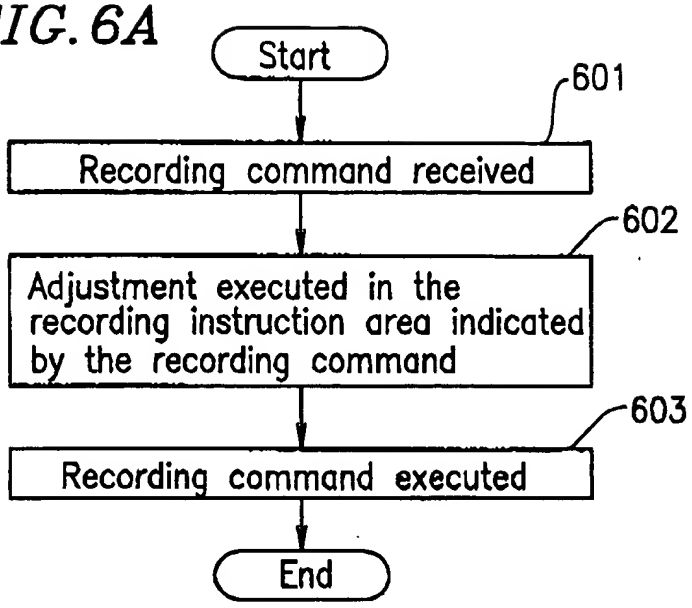

Start
601
Recording command received
602
Adjustment executed in the recording instruction area indicated by the recording command
603
Recording command executed
End

*FIG. 6B*

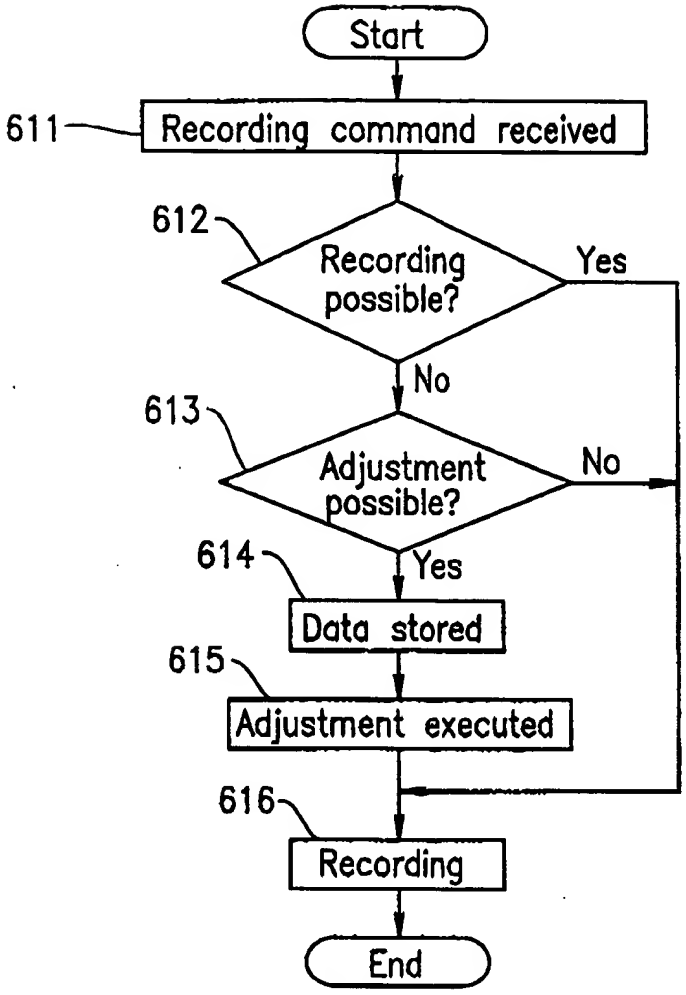

Start
611
Recording command received
612
Recording possible?
Yes
No
613
Adjustment possible?
No
Yes
614
Data stored
615
Adjustment executed
616
Recording
End

*FIG. 7*

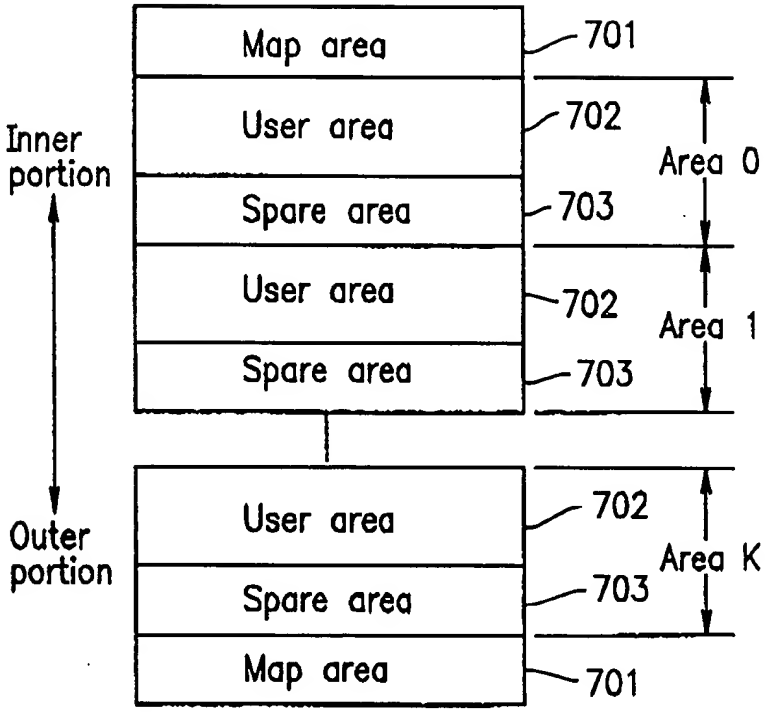

Map area
701
User area
702
Spare area
703
User area
702
Spare area
703
Area 0
Area 1
Inner portion
Outer portion
User area
702
Spare area
703
Map area
701
Area K

*FIG. 8*

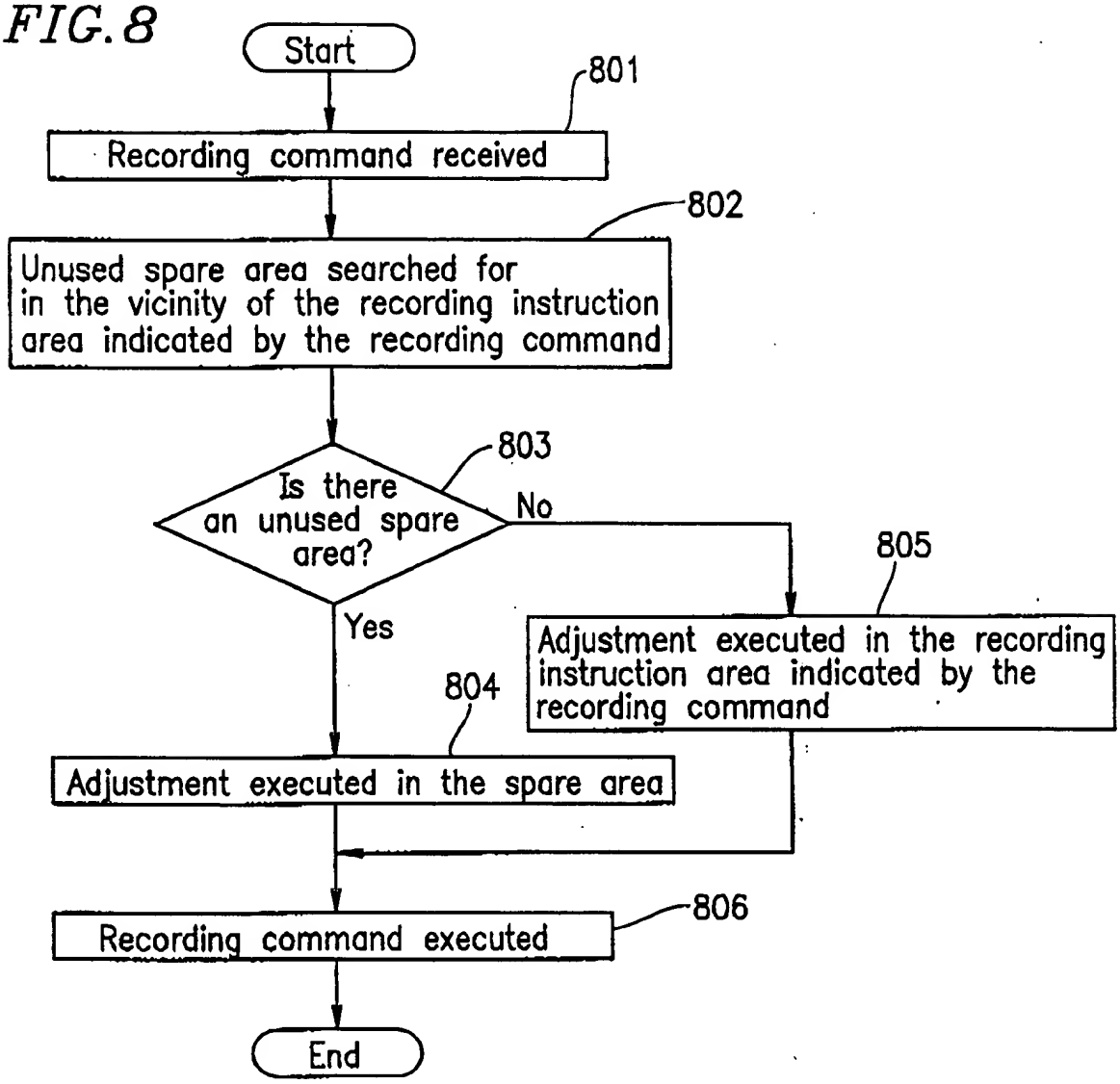

Start
801
Recording command received
802
Unused spare area searched for in the vicinity of the recording instruction area indicated by the recording command
803
Is there an unused spare area?
No
Yes
805
Adjustment executed in the recording instruction area indicated by the recording command
804
Adjustment executed in the spare area
806
Recording command executed
End

FIG. 9

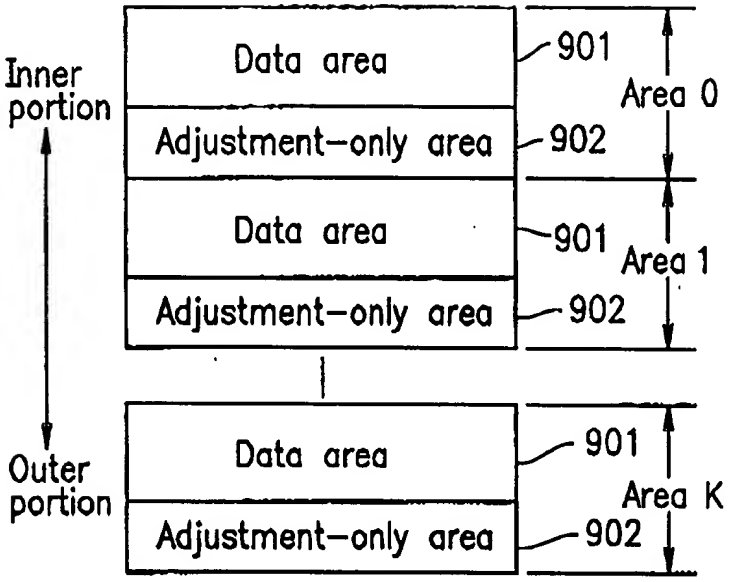

Inner portion
Outer portion
Data area
Adjustment-only area
Data area
Adjustment-only area
Data area
Adjustment-only area
901
902
901
902
901
902
Area 0
Area 1
Area K

FIG. 10

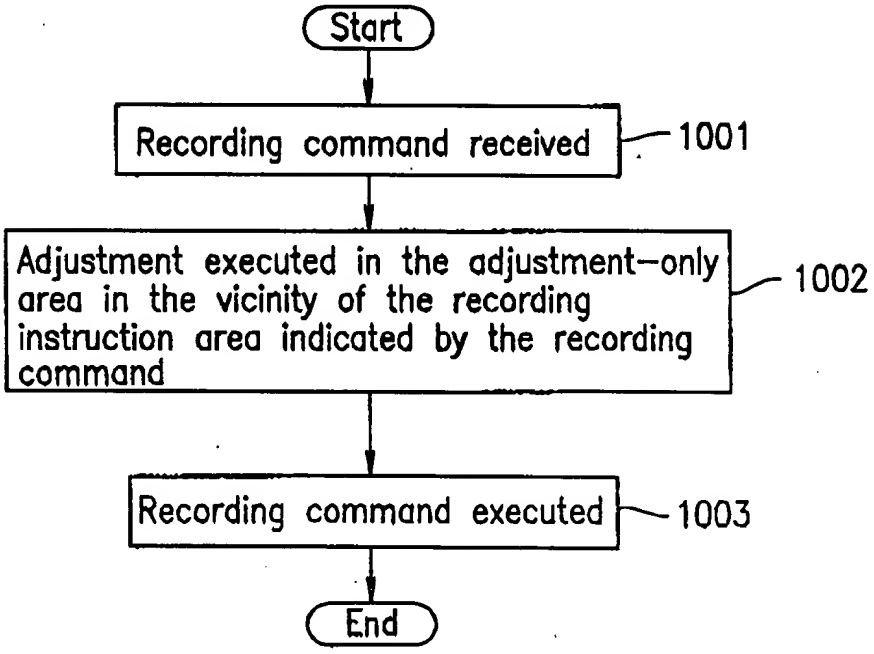

Start
Recording command received
1001
Adjustment executed in the adjustment-only area in the vicinity of the recording instruction area indicated by the recording command
1002
Recording command executed
1003
End

*FIG. 11*

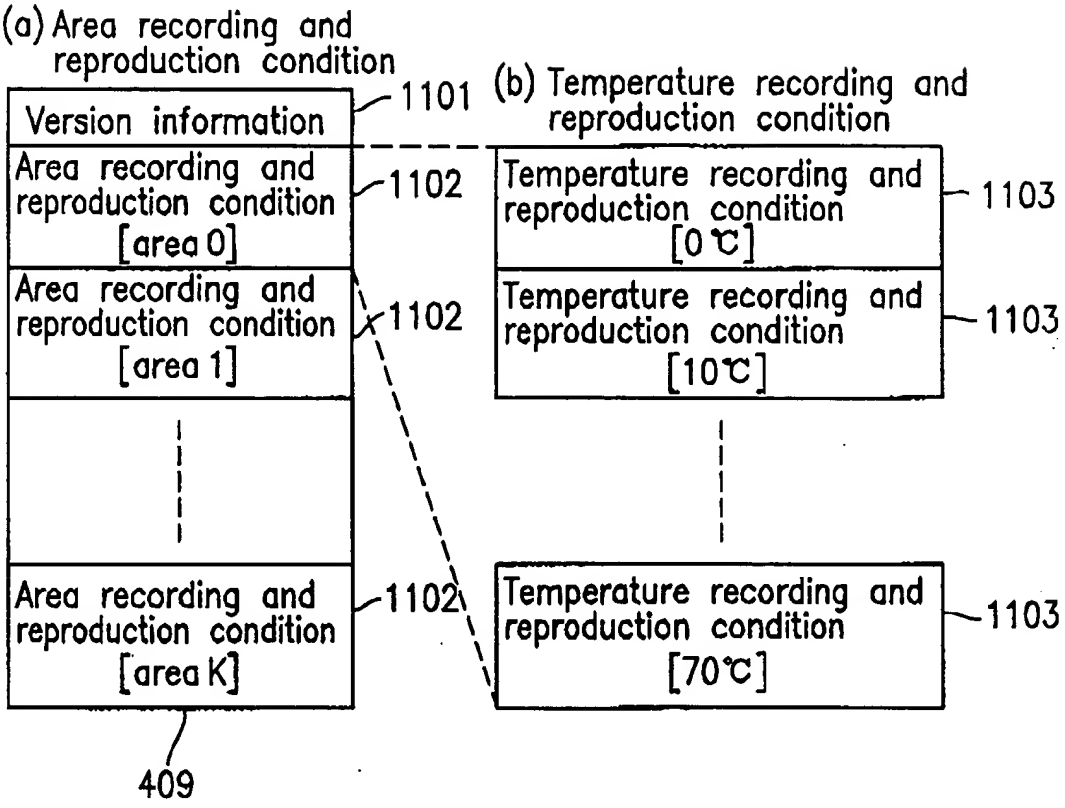

(a) Area recording and reproduction condition
(b) Temperature recording and reproduction condition
Version information
1101
Area recording and reproduction condition [area 0]
1102
Area recording and reproduction condition [area 1]
1102
Area recording and reproduction condition [area K]
1102
Temperature recording and reproduction condition [0℃]
1103
Temperature recording and reproduction condition [10℃]
1103
Temperature recording and reproduction condition [70℃]
1103
409

FIG. 12

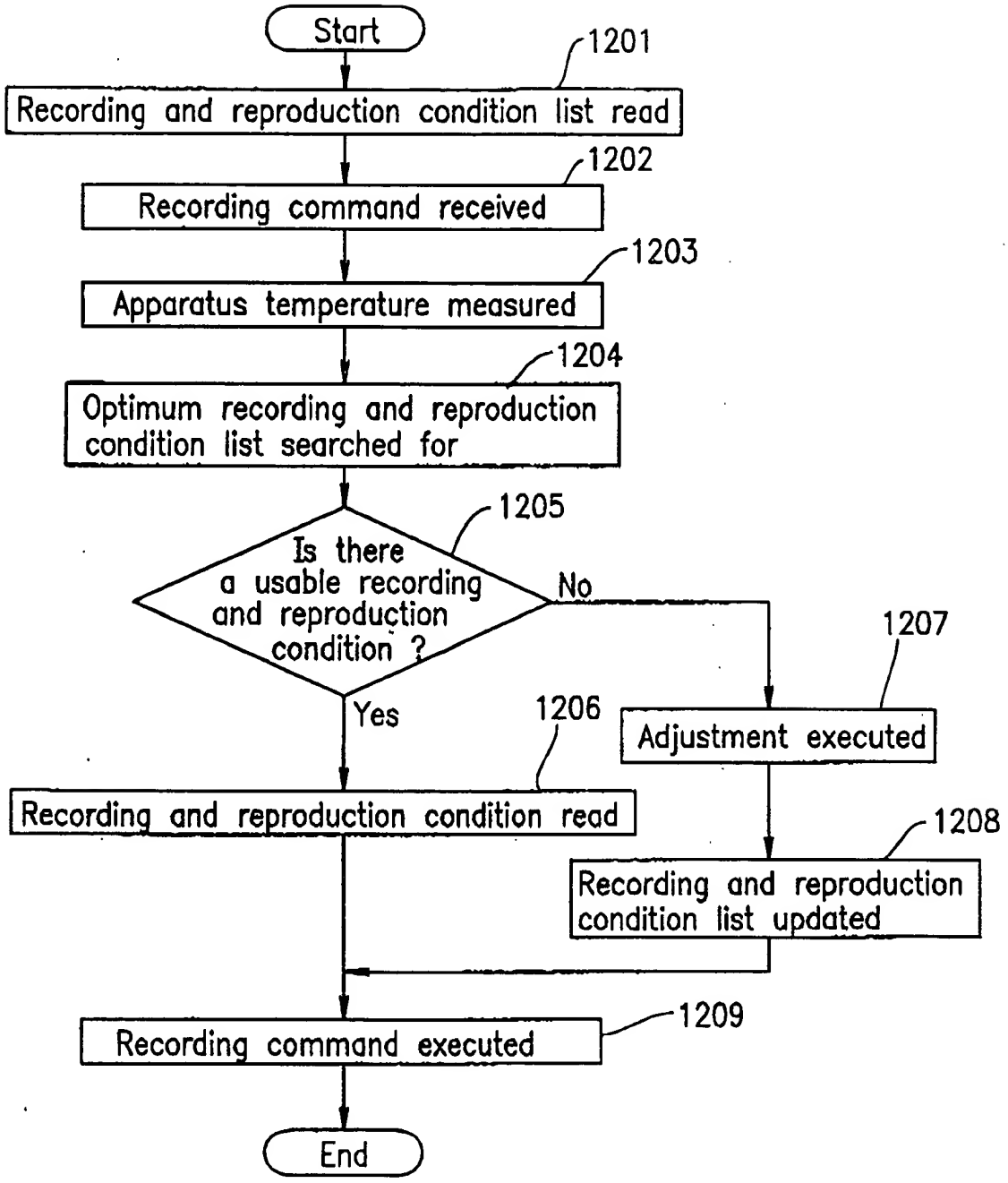

Start
1201
Recording and reproduction condition list read
1202
Recording command received
1203
Apparatus temperature measured
1204
Optimum recording and reproduction condition list searched for
1205
Is there a usable recording and reproduction condition ?
No
Yes
1206
Recording and reproduction condition read
1207
Adjustment executed
1208
Recording and reproduction condition list updated
1209
Recording command executed
End

FIG. 13

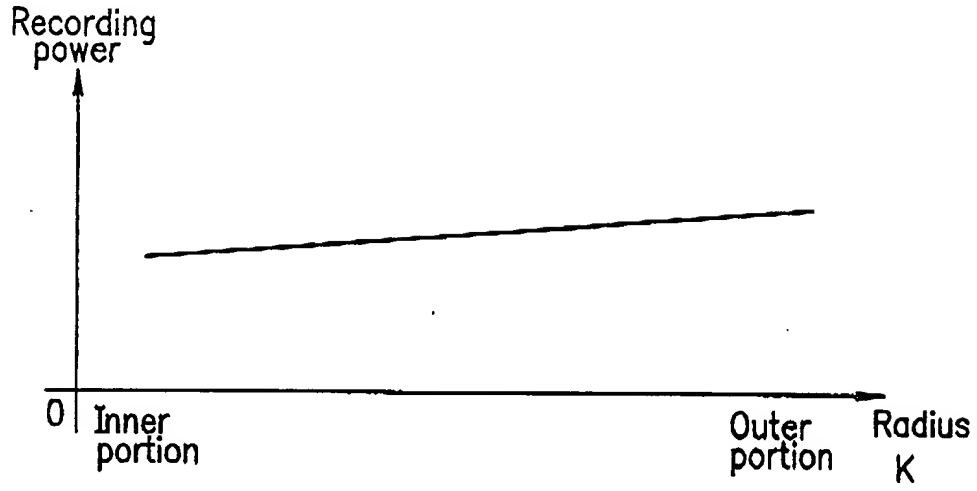

Recording power
0
Inner portion
Outer portion
Radius K

FIG. 14

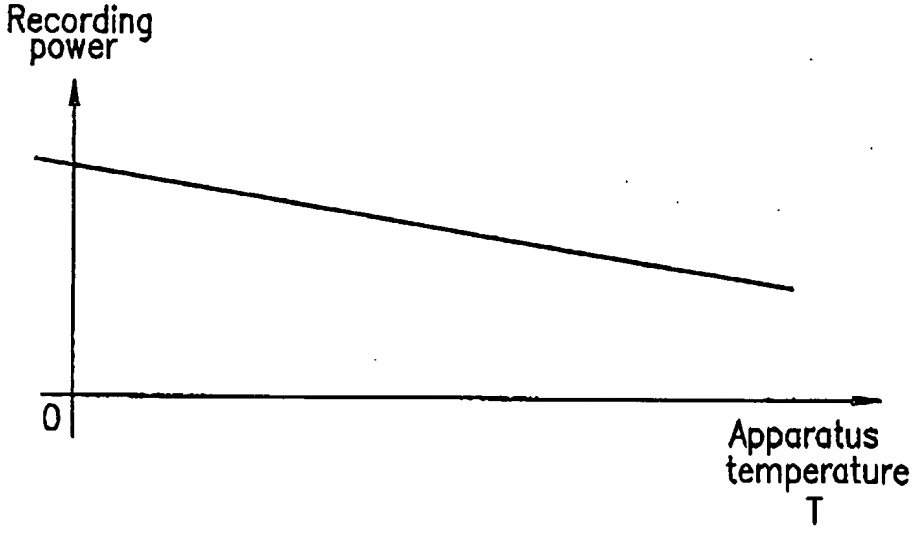

Recording power
0
Apparatus temperature T

FIG. 15

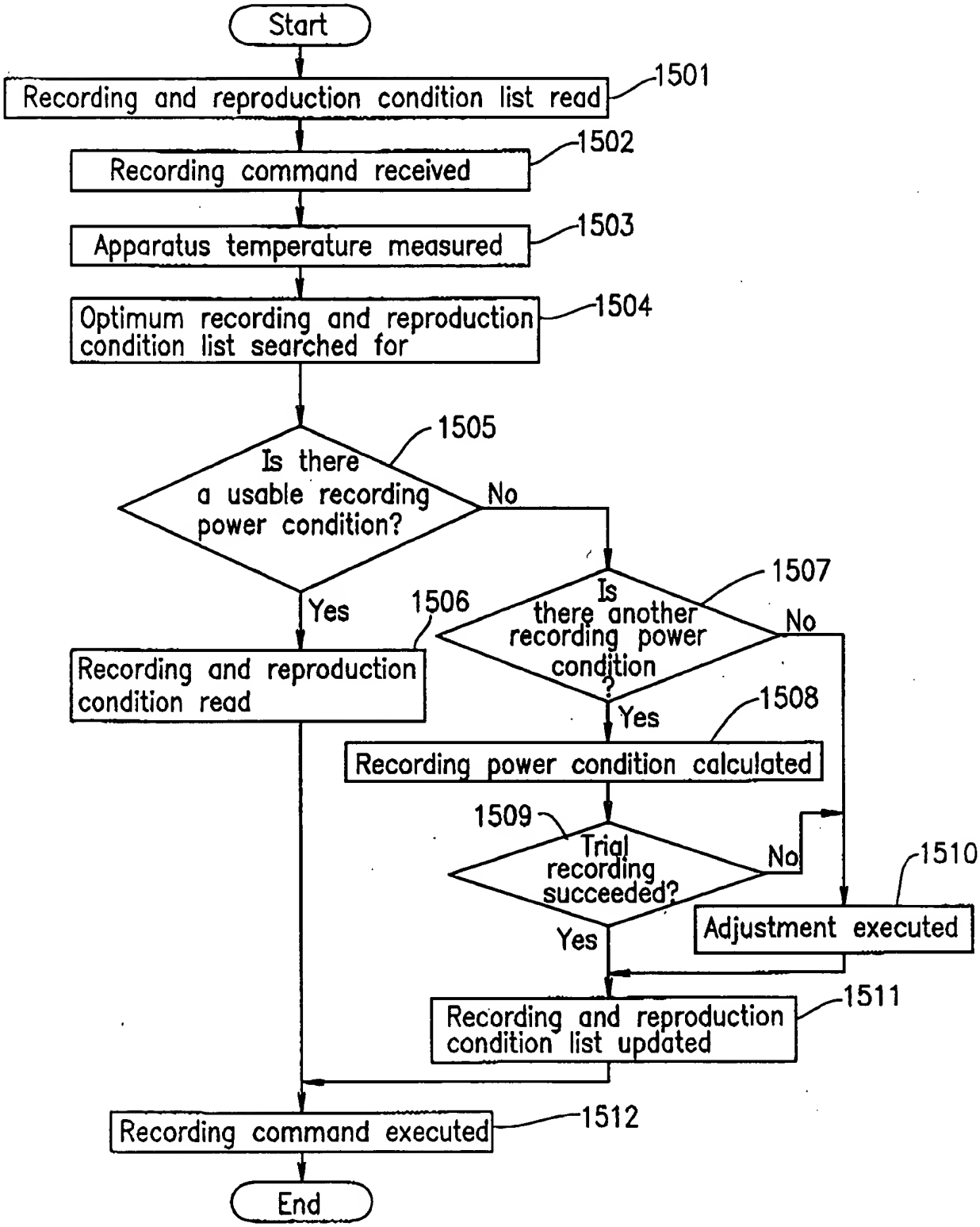

Start
Recording and reproduction condition list read
1501
Recording command received
1502
Apparatus temperature measured
1503
Optimum recording and reproduction condition list searched for
1504
Is there a usable recording power condition?
1505
No
Yes
1506
Recording and reproduction condition read
Is there another recording power condition ?
1507
No
Yes
1508
Recording power condition calculated
Trial recording succeeded?
1509
No
Yes
1510
Adjustment executed
Recording and reproduction condition list updated
1511
Recording command executed
1512
End

FIG. 16

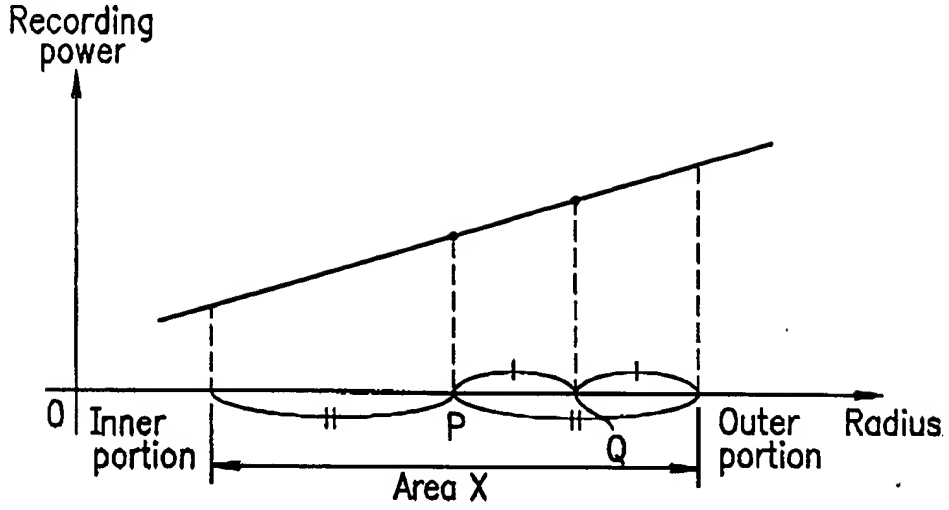

Recording power
0
Inner portion
P
Q
Outer portion
Radius
Area X

FIG. 17

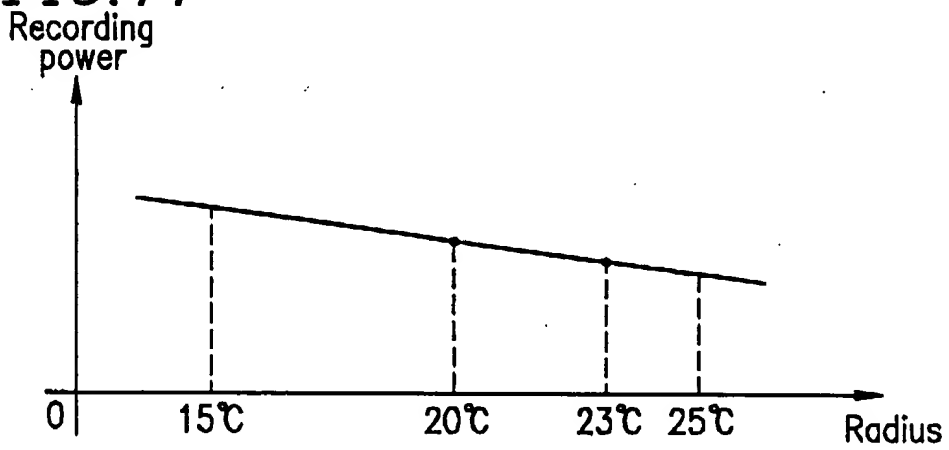

Recording power
0
15℃
20℃
23℃
25℃
Radius

FIG. 18

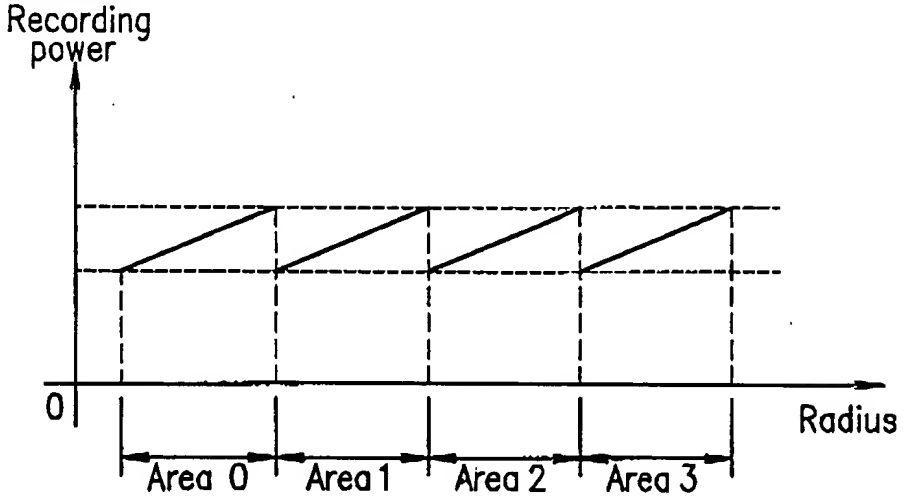



FIG. 19

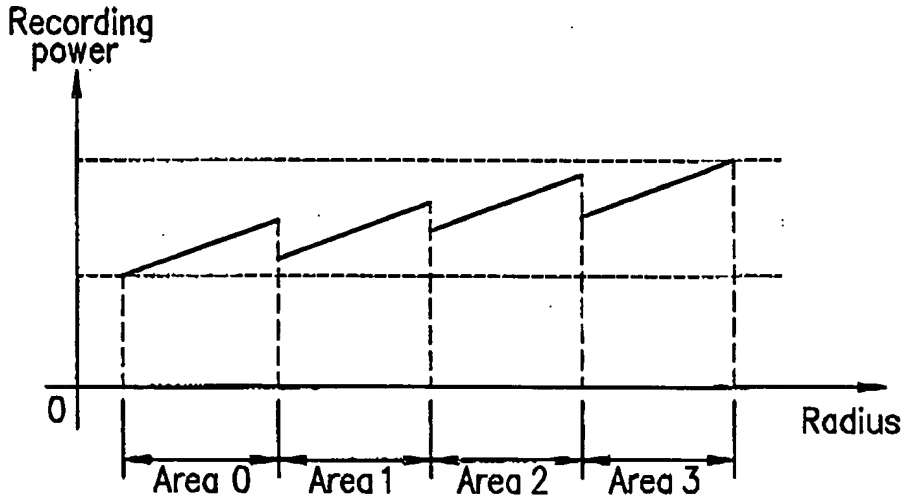



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FIG. 20

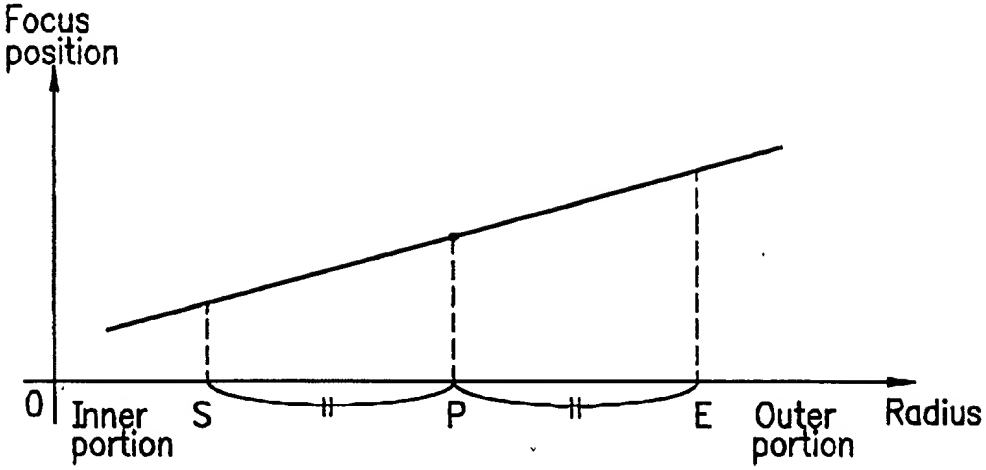

Focus position
0
Inner portion
S
P
E
Outer portion
Radius

FIG. 21

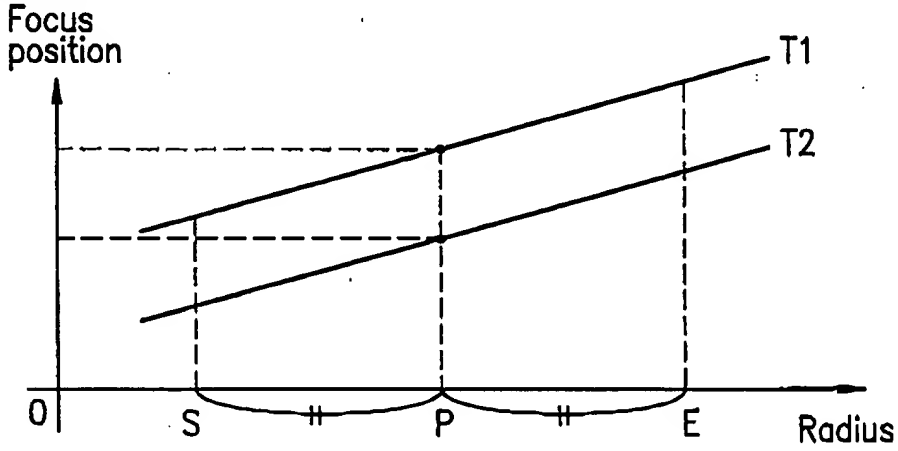

Focus position
T1
T2
0
S
P
E
Radius

FIG. 22

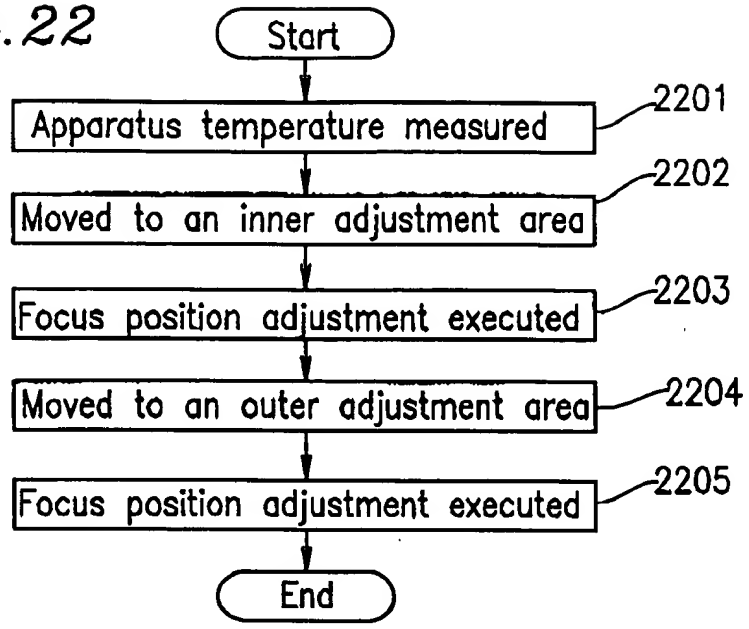

Start
Apparatus temperature measured
2201
Moved to an inner adjustment area
2202
Focus position adjustment executed
2203
Moved to an outer adjustment area
2204
Focus position adjustment executed
2205
End

FIG. 23

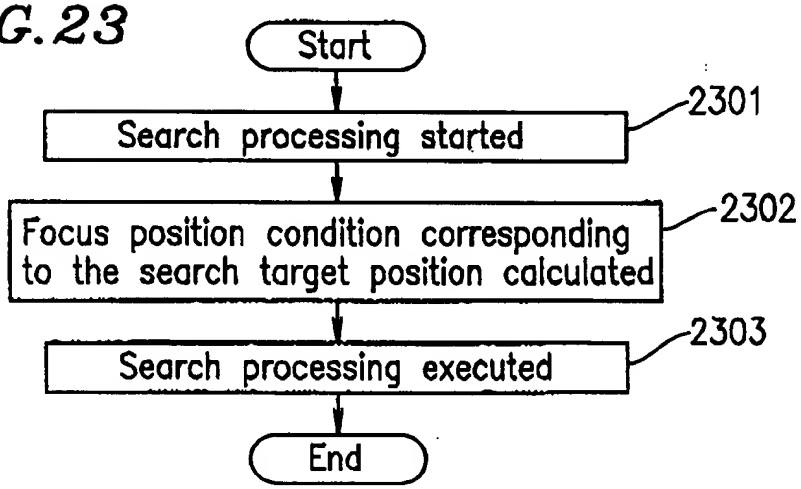

Start
Search processing started
2301
Focus position condition corresponding to the search target position calculated
2302
Search processing executed
2303
End

FIG. 24

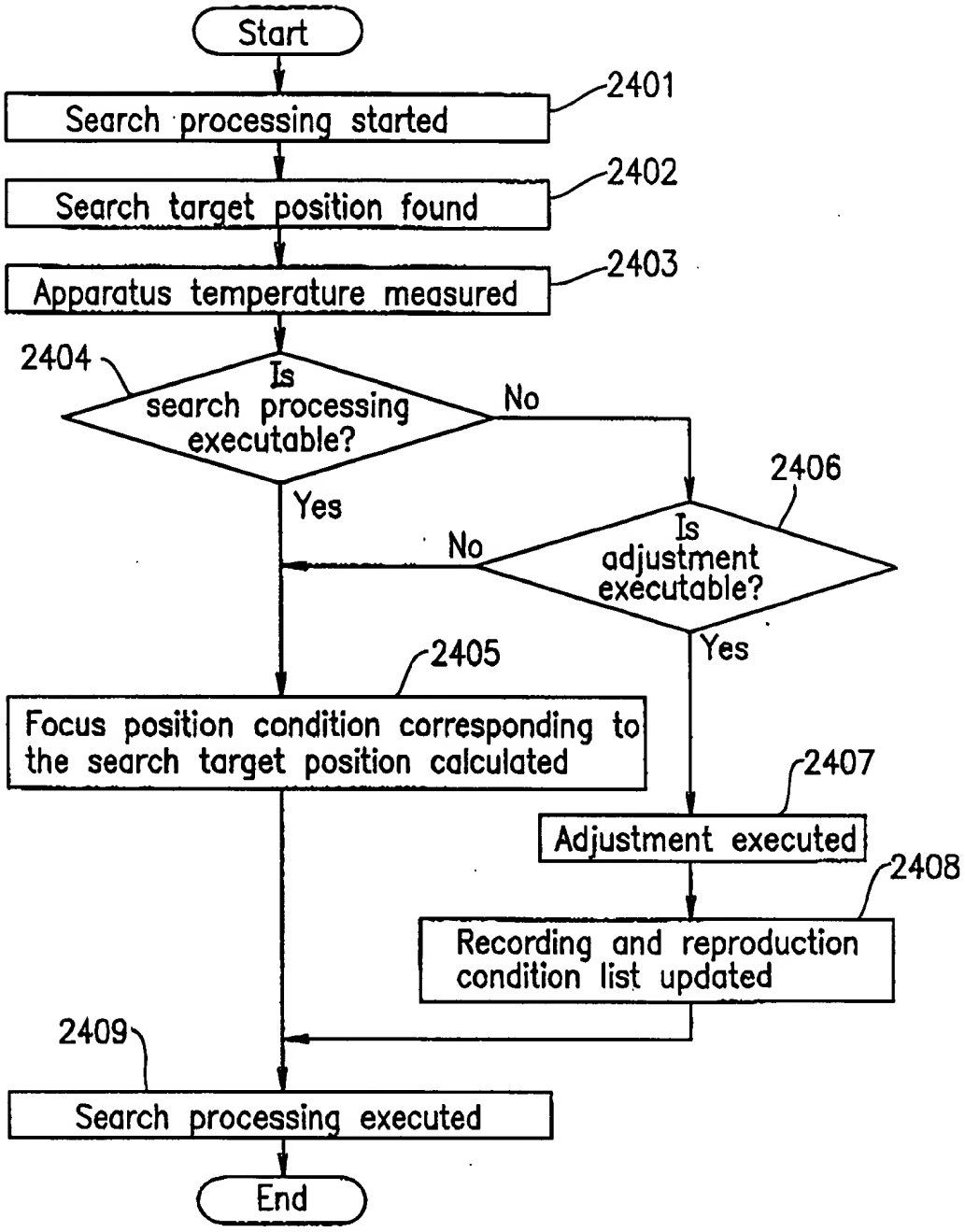
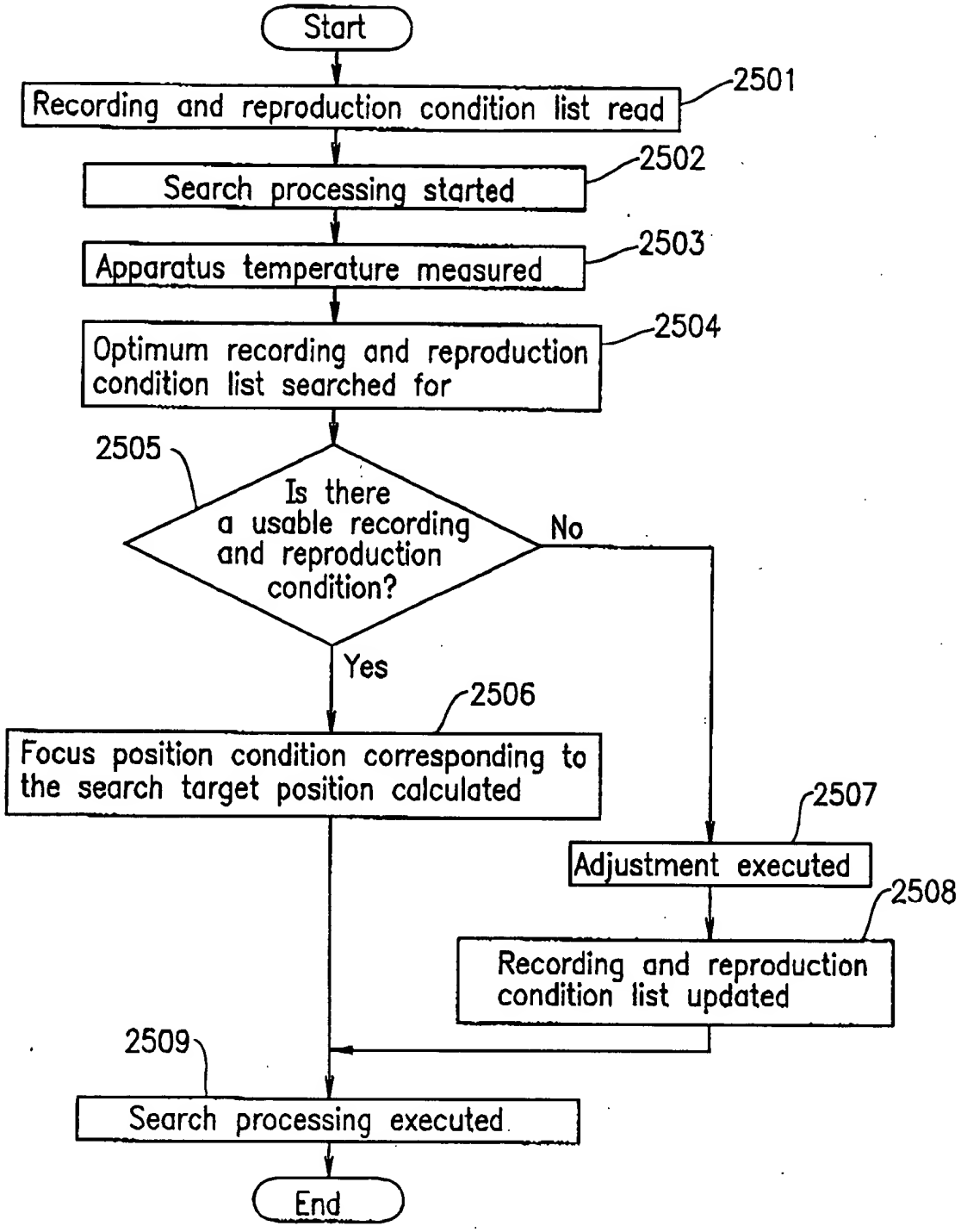

Start
Search processing started
2401
Search target position found
2402
Apparatus temperature measured
2403
2404
Is search processing executable?
No
Yes
2406
Is adjustment executable?
No
Yes
2405
Focus position condition corresponding to the search target position calculated
2407
Adjustment executed
2408
Recording and reproduction condition list updated
2409
Search processing executed
End

FIG.25


Start
Recording and reproduction condition list read
2501
Search processing started
2502
Apparatus temperature measured
2503
Optimum recording and reproduction condition list searched for
2504
2505
Is there a usable recording and reproduction condition?
No
Yes
2506
Focus position condition corresponding to the search target position calculated
2507
Adjustment executed
2508
Recording and reproduction condition list updated
2509
Search processing executed
End